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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,508	11/12/2003	Tzu Chi Cheng	3221/23	4862

7590

11/30/2005

David E. Dougherty  
Dennison, Schultz, Dougherty & MacDonald  
1727 King Street  
Suite 105  
Alexandria, VA 22314

EXAMINER

REHM, ADAM C

ART UNIT

PAPER NUMBER

2875

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

5K

<b>Office Action Summary</b>	<b>Application No.</b> 10/705,508	<b>Applicant(s)</b> CHENG ET AL.	
	<b>Examiner</b> Adam C. Rehm	<b>Art Unit</b> 2875	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11/7/2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 8 and 9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over SHIGEKAZU (JP 2003-249693) in view of ODAKI ET AL. (US 6,521,915).
2. In regards to Claims 1 and 8, SHIGEKAZU provides at least one blue light emitting diode (1) as a blue light source; at least one red light emitting diode (2) as a red light source; and a YAG fluorescent layer (3, Paragraph 14) formed by mixing fluorescent powders with transparent resin (Paragraph 14); the fluorescent layer being glued to the blue light emitting diode and the red light emitting diode (Figure 1); the blue light emitting diode and the red light emitting diode emitting blue light and red light, respectively, which are then mixed (Paragraph 16); the fluorescent layer absorbing radiation having a blue light to emit light with wavelengths different from the blue light and red light (Paragraph 16); wherein the YAG is activated by cerium (Paragraph 14).
3. In regards to Claim 9, SHIGEKAZU provides at least one blue light emitting diode (1) as a blue light source; at least one red light emitting diode (2) as a red light source; a fluorescent layer (3) formed by mixing fluorescent powders with transparent resin (Paragraph 14); and the fluorescent layer enclosing the blue light emitting diode (Figure

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1); and a transparent resin layer enclosing the fluorescent layer and red light emitting diode (Figure 1, Paragraph 14); wherein the YAG is activated by cerium (Paragraph 14).

4. While SHIGEKAZU discloses the claimed invention including YAG:Ce (Paragraph 14), SHIGEKAZU does not specifically disclose YAG activated by terbium/YAG:Tb<sup>3+</sup> or europium/YAG:Eu<sup>2+</sup>/Eu<sup>3+</sup>. However, ODAKI ET AL. teaches the use of a transparent, fluorescent layer comprised of YAG with various doping agents including Tb and Eu for the purpose of activating the YAG (Column 4, Lines 64-Column 5, Line 8). Notably, YAG phosphors are well known in the art as well as their various activators such as terbium, cerium and europium, which are used to enhance luminescence efficiency. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify and dope the YAG disclosed in SHIGEKAZU with terbium or europium in order to activate the YAG as taught by ODAKI, thus enhancing luminescence. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

#### ***Response to Arguments***

Applicant's arguments filed 11/14/2005 have been fully considered but they are not persuasive.

5. Regarding Claims 1 and 8, Applicant argues that SHIGEKAZU does not disclose or suggest the use of terbium or europium. As noted above, the SHIGEKAZU reference utilizes YAG, but does not specifically disclose the activator claimed by Applicant. However, the exact composition claimed is obtainable via utilizing known activators of

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YAG as illustrated by ODAKI. The use and doping of YAG with either terbium or europium and the luminescence-enhancement properties thereof are well known in the art. The rejection of Claim 1 is maintained.

6. Regarding Claims 6-8, Applicant submits, "dependent Claims 6-8...are clearly distinguished over the SHIGEKAZU reference." Page 5, Lines 1-3. Notably, this conflicts with Applicant's cancellation of Claims 6 and 7.

7. Regarding Claim 9, Applicant argues Applicant argues that SHIGEKAZU does not disclose or suggest a fluorescent layer that encloses a blue LED. However, SHIGEKAZU specifically discloses enclosing the blue LED with YAG (Paragraph 11). Applicant further argues that the fluorescent layer 30 has a smaller area and the fluorescent powder in layer 30 provides higher density. Notably, Applicant's arguments are not supported by the claims and SHIGEKAZU discloses the structure as claimed. The rejection of Claim 9 is maintained.

8. Given the above, the claims are found to be unpatentable over SHIGEKAZU.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. SLUZKY ET AL. (US 5,512,210) discloses the use of YAG and doping with cerium, terbium or europium.

10. VRIENS ET AL. (US 4,990,824) discloses the use of YAG:Tb and YAG:Eu as optical layers depending on desired optical performance.

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11. VAN DER VOORT (US 4,937,661) discloses the preferred use and emission spectrum regions of YAG:Tb.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

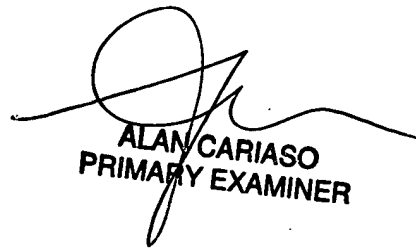
***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam C. Rehm whose telephone number is 571.272.8589. The examiner can normally be reached on M-F 9-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571.272.2378. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ACR  
11/20/2005



ALAN CARIASO  
PRIMARY EXAMINER